

INSTRUCTIONAL TECHNOLOGY ACADEMY



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Academy Introduction

Using the **Instructional Technology Academy** transparency (T1), review the modules with the paraeducators before beginning the academy.

The intention of this academy is to assist paraeducators in examining the types of technology they use daily, as well as those types that they may not currently have skill in using but that can broaden their repertoire of available skills.

Because of the content and nature of this academy, arrangements will need to be made to tour an equipment room in a school with the participants, and for various forms of typical school equipment, assistive and adaptive technologies, various software packages, and access to an email system and the Internet. Additionally, the use of computers is necessary to complete this academy. Teaching **Module C: Computer Use in Schools and Classrooms** in a computer lab or classroom designed for multi-user computing that allows for a low student-to-computer ratio is recommended, as well as arranging to have either a teacher or representative from the school district that is highly knowledgeable regarding the district's network, email, and other computer-related systems present during this module to assist with instruction.

Please note that some of the material contained in this academy refers specifically to the state of Colorado. If the academy is being taught elsewhere, it will be necessary to obtain comparable information for the location the academy is being taught in.

Instructional Technology Academy

InTech-T1



Module A: Operation and Use of Instructional Materials

- *Define low- and high-tech materials.*
- *Create a variety of instructional materials using low- and high-tech equipment.*
- *Demonstrate how to operate typical types of school-wide technologies.*

Module B: Understanding the Paraeducator's Role in Implementing Technology in the Classroom

- *Define accommodation and modification as they relate to the use of technology in the classroom.*
- *Identify the role of the paraeducator in the use of typical and assistive technologies.*

Instructional Technology Academy

(continued)

InTech-T1



Module C: Computer Use in Schools and Classrooms

- *Identify common uses of computers in classrooms.*
- *Demonstrate how to use the Internet and email as educational tools.*
- *Demonstrate the use of various types of computer-related assistive technologies used by students with special needs.*

Module D: Assisting Students with Special Needs Through the Use of Adaptive Equipment

- *Recognize the importance of legally defined assistive technologies in IEP objectives.*
- *Demonstrate how to use a variety of adaptive equipment needed to address physical, sensory, and communicative needs.*
- *Identify the role of the paraeducator in optimizing the use of technology for students.*

Module A: Operation and Use of Instructional Materials

Instructional Technology Academy

Module A: Operation and Use of Instructional Materials



A. Module Goals

Using the **Module A: Operation and Use of Instructional Materials** handout and transparency (**H1/T1**), review the goals of the modules.

1. Define low- and high-tech materials.
2. Create a variety of instructional materials using low- and high-tech equipment.
3. Demonstrate how to operate typical types of school-wide technologies.



Goal 1: Define low- and high-tech materials.



1.1 Discussion: Low-Tech vs. High-Tech

Paraeducators use many materials throughout the school day. Often the materials are technologically based, but are not thought of as being technology because they have become routine elements of school-based materials. Point out that while these have become commonplace, they are still technology and fall into one of two categories, low-tech and high-tech.

Present and review the **Low-Tech Materials...** transparency (T2). Low-tech materials:

- Are simple interventions that are inexpensive, easy to build, and easy to use.
- Usually have few moving parts and are not powered by electricity or other means.

Present and review the **High-Tech Materials...** transparency (T3). High-tech materials:

- Are complex electric or mechanical devices.



Note to Instructor: Solicit one volunteer from the class to aid in facilitating each of the following two discussions: **1.2 Discussion: Low-Tech Materials and Equipment** and **1.3 Discussion: High-Tech Materials and Equipment**. Their participation will be noted as needed.



1.2 Discussion: Low-Tech Materials and Equipment

Have one of the volunteer participants come to the overhead projector. Point out that the transparency and overhead projector (or InFocus machine) they are using are common forms of technology used in classrooms.

Engage the participants in a discussion regarding low-tech materials and equipment they have used as paraeducators. Instruct the volunteer to record the discussion on a blank transparency. Use the following questions to guide the discussion.

- How are the various low-tech materials and equipment that you use utilized?

- Which of the low-tech materials and equipment are you comfortable using?
- Which technologies would you like to have a better understanding of?
- Which materials and equipment were the easiest to learn and which were more challenging?

Be sure the list of low-tech materials and equipment the participants provide includes:

- Pencil grips,
- Tape dispensers,
- Wipe-off markers and boards,
- Seat cushions,
- Manipulatives, and
- Crutches.



1.3 Discussion: High-Tech Materials and Equipment

Have the other volunteer participant come to the overhead projector.

Engage the participants in a discussion regarding high-tech materials and equipment they have used as paraeducators. Instruct the volunteer to record the discussion on a blank transparency. Use the following questions to guide the discussion:

- How are the various high-tech materials and equipment you use utilized?
- Which of the high-tech materials and equipment are you comfortable using?
- Which technologies would you like to have a better understanding of?
- Which materials and equipment were the easiest to learn and which were more challenging?

Be sure the list of high-tech materials and equipment the participants provide includes:

- Complex computer software,
- Computers,
- Computer printers,
- Fax machines, and
- Motorized wheelchairs.



Goal 2: Create a variety of instructional materials using low- and high-tech equipment.



2.1 Lecture: Low- and High-Tech Equipment and Instructional Materials

Paraeducators spend a great deal of time designing and building materials that are used throughout the school day. Present and review the **Instructional Materials...** transparency (T4). Instructional materials generally serve to:

- Assist the teacher or paraeducator in teaching a lesson or activity,
- Provide for daily classroom management, or
- Assist students in completing an activity.

Often the creation of instructional materials goes beyond the typical day-to-day processes of making copies of worksheets and providing paper, markers, scissors, etc. for a classroom project or activity to enhancing existing materials for some or all of the students using both low- and high-tech equipment. Enhancements may include the modifications to materials, providing access to the materials, or modifying the environment in which the materials will be used.

Distribute and review the **Low- and High-Tech Equipment and Instructional Materials Examples** handout (H2).

Activity 1: Taking Class Attendance

- Equipment Needed by the Teacher or Paraeducator:
 - ↳ Low-Tech:
 - ⇒ A pen to record responses.
 - ↳ High-Tech:
 - ⇒ A computer and software to generate the original master copy of the class list.
 - ⇒ A copy machine to make copies of the master list.
 - ⇒ A school phone system to call parents regarding absenteeism.
 - ⇒ A computer and software to enter data regarding attendance and absenteeism.
- Equipment Needed by Students:
 - ↳ Low-Tech:
 - ⇒ For typical students:
 - None.

- ⇒ For students with communicative or physical disabilities:
 - A cue for response.
 - A card that says “here.”
- ↪ High-Tech:
 - ⇒ For typical students:
 - None.
 - ⇒ For students with communicative or physical disabilities:
 - A computerized or augmentative communication device.

Activity 2: Art Projects in a Learning Center

- Equipment Needed by the Teacher or Paraeducator:
 - ↪ Low-Tech:
 - ⇒ Markers.
 - ⇒ Glue.
 - ⇒ Scissors.
 - ⇒ Pencil grips for those students who need them.
 - ↪ High-Tech:
 - ⇒ A computer and Internet access to research ideas and instructions for the project.
 - ⇒ A copy machine to make patterns for the project.
- Equipment Needed by Students:
 - ↪ Low-Tech:
 - ⇒ For all students:
 - Markers.
 - Glue.
 - Scissors.
 - ⇒ For students with communicative or physical disabilities:
 - Pencil grips.
 - Adapted scissors.
 - A visual example of the completed project.
 - ↪ High-Tech:
 - ⇒ Typically, high-tech equipment will not be necessary for such activities.



2.2 Activity: Using Low- and High-Tech Equipment

Paraeducators will participate in an activity that provides an opportunity to gain a better understanding of the types of low- and high-tech equipment used in various

activities.



2.2.1 Steps

- Have the paraeducators break into small groups.
- Have the groups discuss and list duties that involve students and are part of their typical day as a paraeducator.
- Distribute the **Using Low- and High-Tech Equipment** handout (H3) and instruct the groups to complete the handout using one of the activities from their list.
- When finished, ask each group to share their examples with the class.



Goal 3: Demonstrate how to operate typical types of school-wide technologies.



3.1 Discussion: School-Wide Technology

Often paraeducators are the staff members who most frequently use the school's technology. Point out that often paraeducators are only given simple cues from their supervisor, such as, "Could you take care of the video camera for this afternoon's activity?" Where technology is concerned, the expected response to the cue "...take care of the video camera..." is much more complicated than it sounds. Paraeducators need to:

- Set up equipment for students or teachers to use.
- Troubleshoot when equipment is not working appropriately.
- Assist or substitute in the school's main office.
- Support the classroom by performing clerical duties.
- Type classroom newsletters.
- Address and/or fax letters or information.
- Take or make phone calls.
- Arrange out-of-school activities.

In order to carry out these jobs, paraeducators need to be familiar with various school-wide systems. Engage the participants in a discussion regarding the various types of school-wide systems they use. Discuss how each piece of equipment is used in their school, what the job expectations are around the equipment, and what skills are needed to use the equipment. For example, a video camera is a piece of equipment paraeducators are typically expected to use, and are usually expected to:

- Locate the video camera.
- Check it out.
- Make sure there is a way to plug it in or have adequate batteries charged for use.
- Set the camera up for use.
- Actually do the video taping for a class or activity, or even to be willing to be video taped for a particular activity.
- Return the camera and all attachments in a timely manner.
- Know who to contact if the camera is not working properly.

Be sure the examples of other equipment the participants provide include:

- VCR's,
- Microscopes and other equipment in the science lab,

- Multi-user phone systems,
- Overhead projectors,
- Tape recorders,
- DVD players,
- Computer printers,
- CD players, and
- Digital cameras.



3.2 Activity: School Work and Equipment Rooms

Paraeducators will participate in an activity that provides an opportunity to gain experience using various types of school equipment.



Note to Instructor: In order to facilitate this activity, make arrangements to tour an equipment room in a school with the participants. Various forms of typical school equipment should also be made available to the participants to practice using. This does not include computers, printers, or adaptive and augmentative equipment, but should include:

- Multi-level phone systems.
- Intercom systems.
- Fax machine.
- Video camera.
- Digital camera.
- DVD player.
- Overhead projectors.
- Tape recorders.
- Copy machines, using copy codes if needed and discussing duplexing, collating, multiple types of paper, etc.
- Binding machines, using different sizes of spirals and materials.
- Laminators.
- Die-cut machines.
- Paper cutters.
- Electric staplers.
- Language Masters, or similar equipment.
- Walkie talkies.
- Building keys for elevators, access, etc.
- Elevators.
- Other types of equipment as identified by the instructor.



3.2.1 Steps

- As a class, tour a typical school work and/or equipment room.
- Review the use of each piece of equipment in the room(s).
- Have the participants break into small groups.
- Instruct the groups to select and practice using one piece of equipment.
- When finished, have the groups rotate and practice using the next piece of equipment.
- When each group has had practice using three or four pieces of equipment, ask for volunteers who are comfortable with the equipment to demonstrate its use to the class.



3.3 Assignment: Low- and High-Tech Equipment

Have the paraeducators exchange work phone numbers with one other participant and contact each other during the next week to exchange their school's fax number.

Instruct the participants to build a one-page list of the low- and high-tech equipment they use over the next week in their jobs as paraeducators. By the end of the week, the paraeducators should fax each other their list, including a cover sheet.

If a paraeducator's school does not have its own fax machine, they should either:

- Locate and use a fax machine in another setting; or
- Locate a fax machine used in their district, record the number of that fax machine, and contact the office where the machine is located and acquire its cover sheet.

If the paraeducator is using a fax machine to complete the assignment that does not have a specific cover sheet, the paraeducator should create a cover sheet that includes:

- The number of pages being sent, including the cover sheet;
- The name of the person to whom the fax is being sent;
- The phone number of the person to whom the fax is being sent;
- The receiving fax machine's number;
- The name of the person sending the fax;
- The phone number of the person sending the fax; and
- The sending fax machine's number.

The paraeducators should bring their list and the information they received to the next scheduled training session after the week needed for the assignment. If a week does not elapse between sessions, modify the completion of the assignment as needed.

Module A Handouts

Module A: Operation and Use of Instructional Materials

1. Define low- and high-tech materials.
2. Create a variety of instructional materials using low- and high-tech equipment.
3. Demonstrate how to operate typical types of school-wide technologies.

Low- and High-Tech Equipment and Instructional Materials Examples

Activity 1: Taking Class Attendance

- Equipment Needed by the Teacher or Paraeducator:
 - ↳ Low-Tech:
 - ⇒ A pen to record responses.
 - ↳ High-Tech:
 - ⇒ A computer and software to generate the original master copy of the class list.
 - ⇒ A copy machine to make copies of the master list.
 - ⇒ A school phone system to call parents regarding absenteeism.
 - ⇒ A computer and software to enter data regarding attendance and absenteeism.
- Equipment Needed by Students:
 - ↳ Low-Tech:
 - ⇒ For typical students:
 - None.
 - ⇒ For students with communicative or physical disabilities:
 - A cue for response.
 - A card that says “here.”
 - ↳ High-Tech:
 - ⇒ For typical students:
 - None.
 - ⇒ For students with communicative or physical disabilities:
 - A computerized or augmentative communication device.

Low- and High-Tech Equipment and Instructional Materials Examples (continued)

Activity 2: Art Projects in a Learning Center

- Equipment Needed by the Teacher or Paraeducator:
 - ↳ Low-Tech:
 - ⇒ Markers.
 - ⇒ Glue.
 - ⇒ Scissors.
 - ⇒ Pencil grips for those students who need them.
 - ↳ High-Tech:
 - ⇒ A computer and Internet access to research ideas and instructions for the project.
 - ⇒ A copy machine to make patterns for the project.
- Equipment Needed by Students:
 - ↳ Low-Tech:
 - ⇒ For all students:
 - Markers.
 - Glue.
 - Scissors.
 - ⇒ For students with communicative or physical disabilities:
 - Pencil grips.
 - Adapted scissors.
 - A visual example of the completed project.
 - ↳ High-Tech:
 - ⇒ Typically, high-tech equipment will not be necessary for such activities.

Using Low- and High-Tech Equipment

Activity:

- Equipment Needed by the Teacher or Paraeducator:
 - ↳ Low-Tech:

 - ↳ High-Tech:

- Equipment Needed by Students:
 - ↳ Low-Tech:
 - ⇒ For all students, or typical students:

 - ⇒ For students with communicative or physical disabilities:

 - ↳ High-Tech:
 - ⇒ For all students, or typical students:

 - ⇒ For students with communicative or physical disabilities:



Module A Transparencies

Module A: Operation and Use of Instructional Materials

InTechA-T1



- *Define low- and high-tech materials.*
- *Create a variety of instructional materials using low- and high-tech equipment.*
- *Demonstrate how to operate typical types of school-wide technologies.*

Low-Tech Materials...

InTechA-T2



- *Are simple interventions that are inexpensive, easy to build, and easy to use.*
- *Usually have few moving parts and are not powered by electricity or other means.*

High-Tech Materials...

InTechA-T3



- *Are complex electric or mechanical devices.*

Instructional Materials

InTechA-T4



- *Assist the teacher or paraeducator in teaching a lesson or activity,*
- *Provide for daily classroom management, or*
- *Assist students in completing an activity.*

Module B: Understanding the Paraeducator's Role in Implementing Technology in the Classroom

Instructional Technology Academy

Module B: Understanding the Paraeducator's Role in Implementing Technology in the Classroom



A. Module Goals

Using the **Module B: Understanding the Paraeducator's Role in Implementing Technology in the Classroom** handout and transparency (H1/T1), review the goals of the module.

1. Define accommodation and modification as they relate to the use of technology in the classroom.
2. Identify the role of the paraeducator in the use of typical and assistive technologies.



Goal 1: Define accommodation and modification as they relate to the use of technology in the classroom.



1.1 Lecture: Defining Accommodation and Modification

Present and review the **Accommodations** transparency (T2). Accommodation can be defined as:

- Changes in how a student accesses and demonstrates learning without changing the level of instruction, content, or performance criteria.
- Changes that allow for equal access to the educational environment.

Present and review the **Modification** transparency (T3). Modification can be defined as:

- Substantial changes in what a student is expected to learn and demonstrate.
- Substantial changes that provide a more meaningful and productive learning experience and environment.



1.2 Lecture: Technology in the Classroom

Accommodation and modification through technology is being used more and more as a means of support for many students. Students who are learning English as a second language; have learning, visual, hearing, or physical disabilities; or various health needs can use technology to assist them in accessing and learning information.

Most students do not need accommodations or modifications made to the school building, classroom, or curriculum materials in order to participate and benefit educationally. However, when a student cannot benefit in the same manner as their peers because of his or her individual differences, accommodations or modifications should be made. In some instances, schools have a tendency to overreact to differences and, as a result, over accommodate.



1.3 Discussion: Accommodation and Modification in the Classroom

Distribute and review the **Accommodation and Modification Examples** handout (H2).

- **Example 1:**

In a local middle school, a student in the eighth grade had a moderate hearing disability and could not always hear the teacher's lectures. It was suggested that the student would benefit from an expensive electronic hearing/speaking system. The lecturing teacher would wear a device while teaching that would transmit to a hearing aide and a device the student would wear, enabling the student to hear the lecture. While this sounded like a very technologically exciting and appropriate response, it was also a very costly response.

In a meeting regarding the same issue, someone suggested a less costly response that would perhaps be more appropriate. Ensuring that the student was always seated preferentially (close) to the teacher and having the teacher present their lectures while facing the student, would accomplish the same thing. It was also suggested that the student be allowed to bring a tape recorder and record the teacher's lectures so that they would be able to later access the information, if for some reason hearing portions of the lecture was occasionally difficult.

Because the student's hearing disability was moderate and not severe, the suggested accommodations for preferential seating, modified stance during lectures, and the use of a tape recorder were more appropriate than the expensive electronic hearing/speaking system. The accommodations and modifications were easy for the school, teacher, and the student to carry out.

- **Example 2:**

In a local elementary school's general education classroom, a student learning English as second language was given a math worksheet. The worksheet was the same as the one received by the student's peers except that the three word problems had been crossed out. The student was still expected to complete the same amount of multiplication and division problems on the worksheet as the rest of the class.

Engage the participants in a discussion regarding the accommodations and modifications made in each example. Discuss with the participants the various technologies suggested for use in the classroom. Ask the participants to identify the technologies and whether they are low- or high-tech approaches. Clarify the meanings of low- and high-tech as needed. Ask the participants to determine whether each of the changes were accommodations or modifications and why.

In the first example, the changes made were accommodations.

- The changes involved how the student received or accessed

information.

- The student was still expected to learn the same content as his or her peers.
- There were no changes in the criteria that determines the amount of learning.
- The student was allowed equal or the same amount of access to the information and educational environment as his or her peers.

In the second example, the changes made were low-tech modifications.

- The change required only the use of a pencil to cross out the word problems.
- The change involved what the student was expected to learn.
- The change in what was expected of the student was substantial.
 - ↳ Point out that the student could have received bilingual or ESL class time work on the provided math word problems, but that time is not assured. Math word problems may not be addressed for some time, not until the student is proficient enough in English to understand the problems.
- The change was made to provide a more meaningful and productive learning experience for the student.
 - ↳ Point out that if the student had been forced to attempt the word problems, the answers provided would only reflect their ability to understand and interpret English, not their ability to solve word problems. Forcing the student in this situation to solve the word problems in English is counterproductive and not meaningful for the student. The change allowed the math worksheet to be both productive and meaningful.



Goal 2: Identify the role of the paraeducator in the use of typical and assistive technologies.



2.1 Lecture: Paraeducators and Accommodations and Modifications

Emphasize that, as paraeducators, it is seldom their responsibility to determine what accommodations and modifications need to be made for individual students. It is important for the participants to recognize that they are often the only person to see a student in multiple environments throughout the school day that is also aware of the technological supports the student needs for success. As such, it then becomes their responsibility to assist in providing the student access to those supports.



Note to Instructor: At this point in the academy, the participants may have many questions about the various assistive devices and technologies used in classrooms. These will be covered in **Module D: Assisting Students with Special Needs Through the Use of Adaptive Equipment.**



2.2 Lecture: Paraeducators in the Classroom

The duties of paraeducators are no longer limited to record keeping, preparing materials, monitoring students in lunchrooms and study halls, and maintaining learning centers and equipment. Today they are active participants in the instructional process and the delivery of other direct services.

Present and review the **Paraeducators...** handout and transparency (**H3/T4**). Under the supervision of school professionals, paraeducators:

- Carry out instruction to individuals and small groups, based on lesson and individual educational plans.
- Assist individual students with personal care, mobility, and health plans.
- Reinforce learning with individuals or small groups.
- Assist with observations, recording data, and charting.
- Assist with crisis and ongoing behavior management.
- Participate in building level duties, as assigned by the building administrator.
- Score tests and papers, and assist in data collection procedures.
- Assist with functional assessments and fact-finding interviews.
- Participate in educational planning teams.
- Perform clerical tasks.

- Prepare, produce, and maintain instructional, adaptive, and augmentative materials.
- Maintain and operate instructional equipment.
- Help develop schedules.



2.3 Activity: Technology and Me

Paraeducators will participate in an activity that provides an opportunity to reflect on the technologies they use and their skills in using them.



2.3.1 Steps

- Distribute the **Technology and Me** handout (H4).
- Have the participants complete the handout by reflecting on the types of technology they use, their skills in using them, and how they acquired those skills.
- When finished, have the participants share their reflections with the class.

Module B Handouts

Module B: Understanding the Paraeducator's Role in Implementing Technology in the Classroom

1. Define accommodation and modification as they relate to the use of technology in the classroom.
2. Identify the role of the paraeducator in the use of typical and assistive technologies.

Accommodation and Modification Examples

Example 1:

In a local middle school, a student in the eighth grade had a moderate hearing disability and could not always hear the teacher's lectures. It was suggested that the student would benefit from an expensive electronic hearing/speaking system. The lecturing teacher would wear a device while teaching that would transmit to a hearing aide and a device the student would wear, enabling the student to hear the lecture. While this sounded like a very technologically exciting and appropriate response, it was also a very costly response.

In a meeting regarding the same issue, someone suggested a less costly response that would perhaps be more appropriate. Ensuring that the student was always seated preferentially (close) to the teacher and having the teacher present their lectures while facing the student, would accomplish the same thing. It was also suggested that the student be allowed to bring a tape recorder and record the teacher's lectures so that they would be able to later access the information, if for some reason hearing portions of the lecture was occasionally difficult.

Because the student's hearing disability was moderate and not severe, the suggested accommodations for preferential seating, modified stance during lectures, and the use of a tape recorder were more appropriate than the expensive electronic hearing/speaking system. The accommodations and modifications were easy for the school, teacher, and the student to carry out.

Example 2:

In a local elementary school's general education classroom, a student learning English as second language was given a math worksheet. The worksheet was the same as the one received by the student's peers except that the three word problems had been crossed out. The student was still expected to complete the same amount of multiplication and division problems on the worksheet as the rest of the class.

Paraeducators...

- Carry out instruction to individuals and small groups, based on lesson and individual educational plans.
- Assist individual students with personal care, mobility, and health plans.
- Reinforce learning with individuals or small groups.
- Assist with observations, recording data, and charting.
- Assist with crisis and ongoing behavior management.
- Participate in building level duties, as assigned by the building administrator.
- Score tests and papers, and assist in data collection procedures.
- Assist with functional assessments and fact-finding interviews.
- Participate in educational planning teams.
- Perform clerical tasks.
- Prepare, produce, and maintain instructional, adaptive, and augmentative materials.
- Maintain and operate instructional equipment.
- Help develop schedules.

Technology and Me

Reflect on the types of low- and high-tech equipment and materials you use in your role as a paraeducator. Address the following questions:

- What types of technologies do you think were the most challenging for you to learn how to use, and why?
- Do you feel that you are competent in using those more challenging technologies, or do you feel you need further training?
- If you feel you need further training, how will you pursue it?
- Do you feel that your skills with technology make you more qualified for the role of paraeducator?
- Do you feel that others rely on you because of your technological skills?
- Do you like technology? Why or why not?
- What opportunities do you see in your school for technology that either you or students could benefit from?

Module B Transparencies

Module B: Understanding the Paraeducator's Role in Implementing Technology in the Classroom

InTechB-T1



- ***Define accommodation and modification as they relate to the use of technology in the classroom.***
- ***Identify the role of the paraeducator in the use of typical and assistive technologies.***

Accommodations

InTechB-T2



- *Changes in how a student accesses and demonstrates learning without changing the level of instruction, content, or performance criteria.*
- *Changes that allow for equal access to the educational environment.*

Modifications

InTechB-T3



- *Changes in how a student accesses and demonstrates learning without changing the level of instruction, content, or performance criteria.*
- *Changes that allow for equal access to the educational environment.*

Paraeducators...

InTechB-T4



- *Carry out instruction to individuals and small groups, based on lesson and individual educational plans.*
- *Assist individual students with personal care, mobility, and health plans.*
- *Reinforce learning with individuals or small groups.*
- *Assist with observations, recording data, and charting.*
- *Assist with crisis and ongoing behavior management.*
- *Participate in building level duties, as assigned by the building administrator.*
- *Score tests and papers, and assist in data collection procedures.*

Paraeducators... *(continued)*

InTechB-T4



- *Assist with functional assessments and fact-finding interviews.*
- *Participate in educational planning teams.*
- *Perform clerical tasks.*
- *Prepare, produce, and maintain instructional, adaptive, and augmentative materials.*
- *Maintain and operate instructional equipment.*
- *Help develop schedules.*

Module C: Computer Use in Schools and Classrooms

Instructional Technology Academy

Module C: Computer Use in Schools and Classrooms



A. Module Goals

Using the **Module C: Computer Use in Schools and Classrooms** handout and transparency (**H1/T1**), review the goals of the module.

1. Identify common uses of computers in classrooms.
2. Demonstrate how to use the Internet and email as educational tools.
3. Demonstrate the use of various types of computer-related assistive technologies used by students with special needs.



Note to Instructor: The use of computers is necessary to complete this module. Teaching this module in a computer lab or classroom designed for multi-user computing that allows for a low student-to-computer ratio is recommended. Additionally, it is suggested that arrangements be made to have either a teacher or representative from the school district that is highly knowledgeable regarding the district's network, email, and other computer-related systems present during this module to assist with instruction.



Goal 1: Identify common uses of computers in classrooms.



1.1 Lecture: Technology and the Classroom

The world of technology has greatly impacted school systems. Students and teachers at all grade levels use computers for many parts of the educational day. Teachers use computers to take and report class attendance and lunch counts, record and post grades, and report information to parents about their classroom and homework expectations. Students use computers to complete school work, interact with various types of learning-based software, drill and practice skills, and as an information resource. Most school districts and individual schools have websites that allow for easy access to a variety of information, including school schedules and activities. In some districts, all attending students and employed staff are provided their own email addresses.



Note to Instructor: Contact the school district this academy is being taught in to determine which software packages are commonly used in the classroom (curriculum-based, resource, attendance, etc.) and which are used to assist students with special needs (voice-recognition, Co:Writer, word-prediction, etc.). Some of the packages used to assist students with special needs may not be readily available; access to these materials is commonly gained by contacting the school district's augmentative communication team, speech therapist, or occupational therapist. Base the remainder of this lecture on these software packages, briefly reviewing:

- The purpose of the package,
- General usage of the package (word-processing is covered in detail in **1.2 Discussion: Word Processing** and **1.3 Activity: Using Word Processors**), and
- How to obtain those packages that are not commonly used in classrooms.

You will need to arrange for access to these packages, either on one computer that you can use to demonstrate the various packages to the class, or a in computer lab with the packages available on all computers for the participants to use in groups.



1.2 Discussion: Word Processing

Paraeducators are often expected to be able to assist both teachers and students in computer use. It is important that paraeducators are skilled in the common uses of computers and certain basic software packages, like word processors, the most

commonly used packages in schools.

Ask the participants to describe what word processors are. Present and review the **Word Processing** transparency (T2). Word processing is defined as the production of typewritten documents with automated, and usually computerized, typing and text-editing equipment.

Engage the participants in a discussion regarding the word processors they are familiar with and how they learned to use them. The examples should include ClarisWorks, AppleWorks, and Microsoft Word.

Engage the participants in a discussion regarding how these programs are used by students, teachers, and paraeducators within the school.



1.3 Activity: Using Word Processors

Paraeducators will participate in an activity that provides an opportunity to gain practical experience using word processors.



Note to Instructor: The completion of the activity requires the use of computers and a word processing program. The participants should be grouped in a way that teams the more skilled individuals with the novices, and provides optimal access to the computers. In the event that all participants are highly skilled in the elements covered in **1.3.2 Lecture: Using Word Processing Software**, modify the lecture to include the more advanced features of the program. The word processing program used for this activity should be the program typically used in the school district this academy is being taught in. In **1.3.2 Lecture: Using Word Processing Software**, tailor the lecture points to the software being used.



1.3.1 Steps

- Assign the participants to appropriate groups, based on the number of computers available and the skills of the participants, and assign the groups a computer to use.
- Point out that while some participants may be quite skilled and comfortable with computers and word processing programs, not everyone is. Those participants who are novices should be allowed direct access to the computers in order to develop their skills, with the more skilled participants helping to provide additional support.
- Distribute the **Using Word Processing Software** handout (H2).

- Instruct the participants to practice each of the elements after it is covered in lecture and check off as completed.



1.3.2 Lecture: Using Word Processing Software

There are many aspects to word processing software. Review each of the following elements, including how to use them. The basic necessary elements include:

- Opening a new document/file.
- Saving a document/file to a portable disk (floppy, zip, cd, etc.) and the hard drive.
- Formatting tools, including:
 - ↳ Fonts.
 - ↳ Text size.
 - ↳ Text style (bold, italics, underline).
 - ↳ Paragraph format (line spacing, margins, alignment, etc.).
 - ↳ Bullets.
 - ↳ Cutting, copying, and pasting.
- Language tools, including:
 - ↳ Spell check.
 - ↳ Grammar check.
 - ↳ Thesaurus.
- Help menu.
- Printing.



Goal 2: Demonstrate how to use the Internet and email as educational tools.



2.1 Lecture: The Internet and the Classroom

There is increasing use of the Internet in classrooms. The Internet has made it possible to quickly access information that would take hours, days, or weeks through other means. The Internet provides a means to information for those who are geographically isolated from traditional information sources, and to information about geographically isolated regions and materials.

As a part of the instructional team, paraeducators need to be familiar and comfortable with where and how to access various forms of information on the Internet. Three areas of Internet use paraeducators are commonly involved in are:

- Information Gathering
 - ➔ Often paraeducators will be asked to assist students in acquiring resource information, assist teachers in gathering information for a variety of subjects and needs, and explore further resource options.
- Purchases
 - ➔ Often paraeducators are asked to participate in researching and selecting software packages or other product for use in the classroom.
- Materials and Use
 - ➔ Often paraeducators are asked to assist teachers in researching technologies and other materials being used in the classroom, including how to use them.



2.2 Lecture: The Basics

Distribute and review the **The Basics** handout and transparency (**H3/T3**).

- The Internet is an electronic communications network that connects computer networks and organizational computer facilities around the world.
- The World Wide Web is a part of the Internet designed to allow easier navigation of the network through the use of graphical user interfaces (GUI's) and hypertext links between different addresses. The World Wide Web is also referred to as the Web.
- Web browsers are computer programs used for accessing sites or

information on a the World Wide Web.

- ↳ Lynx (<http://lynx.browser.org>)
 - ⇒ Most widely-used browser.
 - ⇒ A text-based browser that allows people with visual or hearing impairments to use braille or screen reading software, and has more navigational capabilities.
- ↳ Netscape (<http://home.netscape.com>)
- ↳ Mozilla (<http://www.mozilla.org>)
- ↳ Chimera (<http://chimera.mozdev.org/>)
- ↳ Opera (<http://www.opera.com>)
- ↳ Internet Explorer (<http://www.microsoft.com>)
- ↳ NCSA Mosaic (<http://archive.ncsa.uiuc.edu/SDG/Software/Mosaic/NCSAMosaicHome.html>)
- ↳ OmniWeb (<http://www.omnigroup.com/applications/omniweb/>)
- A search engine is computer software used to search data (as text or a database) for specified information.
 - ↳ google (<http://www.google.com>)
 - ↳ Yahoo (<http://www.yahoo.com>)
 - ↳ eXcite (<http://www.excite.com>)
 - ↳ HOTBOT (<http://hotbot.lycos.com>)
 - ↳ LYCOS (<http://www.lycos.com>)
 - ↳ Netscape (<http://www.netscape.com>)
 - ↳ Ask Jeeves (<http://askjeeves.com>)
 - ↳ overture (<http://www.overture.com>)
- A Universal (or Uniform) Resource Locator (URL) is the address of a computer or a document on the Internet that consists of a communications protocol followed by a colon and two slashes (<http://>), the identifier of a computer (paracenter.cudenver.edu), and usually a path through a directory to a file ([/index.php?query=projects](http://index.php?query=projects)). A URL is sometimes referred to as a Web Address or Website.



2.3 Activity: Exploring the Internet

Paraeducators will participate in an activity that provides an opportunity to explore resources on the Internet.



Note to Instructor: The completion of the activity requires the use of computers with Internet access. The participants should be grouped in a way that teams the more skilled individuals with the novices, and provides optimal access to the computers.



2.3.1 Steps

- Assign the participants to appropriate groups, based on the number of computers available and the skills of the participants, and assign the groups a computer to use.
- Point out that while some students may be quite skilled and comfortable with computers and the Internet, not everyone is. Those participants who are novices should be allowed direct access to the computers in order to develop their skills, with the more skilled participants helping to provide additional support.
- Distribute the **Exploring the Internet** handout (H4).
- Using each of the search engines provided, instruct the participants to use each of the URLs provided as starting points for their exploration and to add one or two additional URLs they discover for each category, and five additional URLs for the last three: Information Resources, Purchasing Resources, and Materials and Use Resources.
- When finished, have the participants share some of their additional URLs with the class.



2.4 Activity: Email

Paraeducators will participate in an activity that provides an opportunity to gain practical experience in using email.



Note to Instructor: Individual email accounts are necessary to complete this activity. Some school districts use proprietary or closed email systems (CEO, Pine, Elm, Eudora, etc.), others may have a preferred commercial email system (Macintosh's Mail, Microsoft's Outlook, AOL, Hotmail, etc.). Contact the school district this academy is being taught in and determine the preferred email system. If participants do not already have an email account on the preferred system, arrangements will need to be made to provide these or make other arrangements. In the event that all participants are highly skilled in the elements covered in **2.4.2 Lecture: Using Email**, modify the lecture to include the more advanced features of the system. In **2.4.2 Lecture: Using Email**, tailor the lecture points to the email system being used.



2.4.1 Steps

- Have the participants stay in the same groups as for **2.2 Activity: Exploring the Internet**.
- Distribute the **Using Email** handout (H5).
- Instruct the participants to practice each of the elements after it is

- covered in lecture and check off as completed.
- When covering how to send new email, have the participants send email to each other so as to have something to work with for the rest of the activity.



2.4.2 Lecture: Using Email

There are many aspects to email systems. Review each of the following elements, including how to use each. The basic necessary elements include:

- Opening the email program.
 - ↳ Usernames and logins.
 - ↳ Passwords.
- Sending new email.
 - ↳ Using a directory or address book.
- Reading new email.
- Saving email.
- Responding to email.
 - ↳ Forwarding an email.
 - ↳ Replying to sender with quotes.
 - ↳ Replying to sender only.
- Attachments
 - ↳ Opening an attachment.
 - ↳ Saving an attachment.
 - ↳ Sending an attachment.
- Using the help menu.



Goal 3: Demonstrate the use of various types of computer-related assistive technologies used by students with special needs.



Note to Instructor: Arrange to have examples of the devices covered in **3.1 Lecture: Assistive Technology and Computers** available for participants to handle, examine, and use.



3.1 Lecture: Assistive Technology and Computers

Present and review the **Assistive Technology and Computers** transparencies (T4). A variety of assistive technologies can be used to enhance computer access, use, and learning for students with special needs.

- Keyguards
 - ↳ Enable a student with reduced hand function to rest his or her hands on the surface of the keyboard when typing without depressing unwanted keys.
- Alternative Keyboards
 - ↳ Provide specialized shapes and sizes to meet a student's individual needs.
- Head Mouse
 - ↳ Enable a student to move a pointer around the monitor screen, the way that a mouse would, with a device that bounces a beam of light from the student's forehead to the screen.
- Foot Mouse
 - ↳ Enables a student to operate a mouse using foot pedals.
- Switch-Operated Devices
 - ↳ Enables students who cannot directly access a keyboard to do so. Any student who can predictably move a single muscle in their body can use this technology. The monitor lights up or verbalizes each potential choice and the student presses a switch when the desired item is displayed. Many different activation switches exist and can be placed in many configurations depending on the student's abilities.

Module C Handouts

Module C: Computer Use in Schools and Classrooms

1. Identify common uses of computers in classrooms.
2. Demonstrate how to use the Internet and email as educational tools.
3. Demonstrate the use of various types of computer-related assistive technologies used by students with special needs.

Using Word Processing Software

_____ Opening a new document/file.

_____ Saving a document/file to a portable disk (floppy, zip, cd, etc.) and the hard drive.

_____ Formatting tools, including:

_____ Fonts.

_____ Text size.

_____ Text style (bold, italics, underline).

_____ Paragraph format (line spacing, margins, alignment, etc.).

_____ Bullets.

_____ Cutting, copying, and pasting.

_____ Language tools, including:

_____ Spell check.

_____ Grammar check.

_____ Thesaurus.

_____ Help menu.

_____ Printing.

The Basics

- The Internet is an electronic communications network that connects computer networks and organizational computer facilities around the world.
- The World Wide Web is a part of the Internet designed to allow easier navigation of the network through the use of graphical user interfaces (GUI's) and hypertext links between different addresses. The World Wide Web is also referred to as the Web.
- Web browsers are computer programs used for accessing sites or information on a the World Wide Web.
 - ↳ Lynx (<http://lynx.browser.org>)
 - ⇒ Most widely-used browser.
 - ⇒ A text-based browser that allows people with visual or hearing impairments to use braille or screen reading software, and has more navigational capabilities.
 - ↳ Netscape (<http://home.netscape.com>)
 - ↳ Mozilla (<http://www.mozilla.org>)
 - ↳ Chimera (<http://chimera.mozdev.org/>)
 - ↳ Opera (<http://www.opera.com>)
 - ↳ Internet Explorer (<http://www.microsoft.com>)
 - ↳ NCSA Mosaic (<http://archive.ncsa.uiuc.edu/SDG/Software/Mosaic/NCSAMosaicHome.html>)
 - ↳ OmniWeb (<http://www.omnigroup.com/applications/omniweb/>)
- A search engine is computer software used to search data (as text or a database) for specified information.
 - ↳ google (<http://www.google.com>)
 - ↳ Yahoo (<http://www.yahoo.com>)
 - ↳ eXcite (<http://www.excite.com>)
 - ↳ HOTBOT (<http://hotbot.lycos.com>)
 - ↳ LYCOS (<http://www.lycos.com>)
 - ↳ Netscape (<http://www.netscape.com>)
 - ↳ Ask Jeeves (<http://askjeeves.com>)
 - ↳ overture (<http://www.overture.com>)

The Basics **(continued)**

- ↳ dogpile (<http://www.dogpile.com>)
 - ↳ ixquick (<http://www.ixquick.com>)
 - ↳ alltheweb (<http://www.alltheweb.com>)
 - ↳ altavista (<http://www.altavista.com>)
 - ↳ teoma (<http://www.teoma.com>)
-
- A Universal (or Uniform) Resource Locator (URL) is the address of a computer or a document on the Internet that consists of a communications protocol followed by a colon and two slashes (<http://>), the identifier of a computer (paracenter.cudenver.edu), and usually a path through a directory to a file ([/index.php?query=projects](http://paracenter.cudenver.edu/index.php?query=projects)). A URL is sometimes referred to as a Web Address or Website.

Exploring the Internet

Assistive Technology Resources:

- <http://www.paperworkliteracy.com>
- <http://www.aacproducts.org>
- <http://www.ataporg.org>
- <http://www.assis-tech.com>
- <http://www.creative-comm.com>
-
-

Teacher Support Resources:

- <http://inspiration.com/home.cfm>
- <http://www.paperworkliteracy.com>
- <http://www.gsa.gov>
- <http://www.ciconline.com>
- <http://www.dlrn.org>
- <http://www.teachervision.com>
- <http://www.bigchalk.com>
-
-

Student Support Resources:

- <http://www.yahooligans.com>
- <http://www.encyclopedia.com>
- <http://www.kidinfo.com/SchoolSubjects.html>
- <http://webquest.sdsu.edu/webquest.html>
- <http://familyeducation.com/home>
- <http://www.ajkids.com>
- <http://www.awesomelibrary.org>
- <http://www.lycoszone.com/>
- <http://sunsite.berkeley.edu/KidsClick!>
- <http://www.ipl.org>
- <http://www.infoplease.com/homework>
-
-

Exploring the Internet

(continued)

Special Needs Resources:

- <http://www.trace.wisc.edu>
- <http://mayer-johnson.com>
- <http://www.beyondsight.com>
- <http://www.donjohnston.com>
-
-

Learning Disabilities Resources:

- <http://www.ldonline.org>
-
-

Autism Resources:

- <http://www.autism.com>
-
-

Developmental Disabilities Resources:

- <http://ddcboulder.com/whatsdd.htm>
- <http://www.ddrcco.com>
-
-

Blind and Visually Impaired Resources:

- <http://www.grcmc.org/blindser>
-
-

Deaf and Hearing Impaired Resources:

- http://www.kusd.edu/favorite/bookmarks/hearing_impaired.html
-
-

Exploring the Internet (continued)

Physical Disabilities Resources:

- <http://www.kidsource.com/kidsource/pages/dis.physical.html>
-
-

Speech and Language Disabilities Resources:

- http://www.ldonline.org/ld_indepth/speech-language/nichcy-fs11.html
-
-

Bilingual Resources:

- <http://www.awesomelibrary.org/espanol.html>
- <http://www.ciconline.com/section.cfm/2/161>
- <http://www.nabe.org>
- <http://www.learnthenet.com/spanish/html/11parent.htm>
- <http://edweb.sdsu.edu/people/cguanipa/amigos>
- <http://www.hisp.com>
- <http://www.zonalatina.com/Zlchild.htm>
- <http://forum.swartmore.edu/teachers/spanish>
-
-

Spanish Language Resources:

- <http://www.fsu.edu/%7Emodlang/spcai/coursesite/SearchEngines.htm>
-
-

Information Resources:

-
-
-
-
-

Exploring the Internet (continued)

Purchasing Resources:

-
-
-
-
-

Materials and Use Resources:

-
-
-
-
-

Using Email

____ Opening the email program.

____ User names and logins.

____ Passwords.

____ Sending new email.

____ Using a directory or address book.

____ Reading new email.

____ Saving email.

____ Responding to email.

____ Forwarding an email.

____ Replying to sender with quotes.

____ Replying to sender only.

____ Attachments

____ Opening an attachment.

____ Saving an attachment.

____ Sending an attachment.

____ Using the help menu.



Module C Transparencies

Module C: Computer Use in Schools and Classrooms

InTechC-T1



- ***Identify common uses of computers in classrooms.***
- ***Demonstrate how to use the Internet and email as educational tools.***
- ***Demonstrate the use of various types of computer-related assistive technologies used by students with special needs.***

Word Processing

InTechC-T2



The production of typewritten documents with automated, and usually computerized, typing and text-editing equipment.

The Basics

InTechC-T3



- *Internet*
- *World Wide Web*
- *Web Browser*
- *Search Engine*
- *URL*

Assistive Technology and Computers

InTechC-T4



- *Keyguards*
- *Alternative Keyboards*
- *Head Pointers*
- *Foot Mouse*
- *Switch-Operated Devices*

Module D: Assisting Students with Special Needs Through the Use of Adaptive Equipment

Instructional Technology Academy

Module D: Assisting Students with Special Needs Through the Use of Adaptive Equipment



A. Module Goals

Using the **Module D: Assisting Students with Special Needs Through the Use of Adaptive Equipment** handout and transparency (H1/T1), review the goals of the module.

1. Recognize the importance of legally defined assistive technologies in IEP objectives.
2. Demonstrate how to use a variety of adaptive equipment needed to address physical, sensory, and communicative needs.
3. Identify the role of the paraeducator in optimizing the use of technology for students.



Goal 1: Recognize the importance of legally defined assistive technologies in IEP objectives.



1.1 Lecture: Assistive Technology Devices

Present and review the **Assistive Technology Devices** transparency (T2). The Technology-Related Assistance for Individuals with Disabilities Act of 1988 (P.L. 100-407) and the Tech Act legislation (P.L. 100-407), which has been adopted in the Individuals with Disabilities Education Act (IDEA), define assistive technology devices as:

- “...any item, piece of equipment, product, or system, whether acquired commercially or off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities [20 U.S.C. Chapter 33, Section 1401 (25)].”

Point out that this definition is broad and includes a range of devices from low- to high-tech equipment and materials, including the support for such devices.

Present and review the **Low-Tech Assistive Devices** transparency (T3). Examples of low-tech assistive devices include, but are not limited to:

- Devices for holding a pencil to assist with writing.
- Positions for seating in the classroom so that the student may participate more effectively.
- Adapted utensils to enhance a student’s ability to feed him or herself.
- White canes for mobility.
- Adapted puzzles.
- Enlarged letters on a keyboard.
- Desk easels for reading books.
- Chair inserts.
- Electronic switches.
- Beanbag chairs.
- Velcro attachments.
- A picture schedule.

Present and review the **High-Tech Assistive Devices** transparency (T4). Examples of high-tech assistive devices include, but are not limited to:

- Computers,
- Software packages, and
- Any type of electronic device (communication devices, speech

synthesizers, powered wheelchairs, etc.).



1.2 Lecture: Assistive Technology Services

Present and review the **Assistive Technology Services** transparency (T5). The Technology-Related Assistance for Individuals with Disabilities Act of 1988 (P.L. 100-407) and the Tech Act legislation (P.L. 100-407), which has been adopted in the Individuals with Disabilities Education Act (IDEA), define assistive technology services as:

- "...any service that directly assists an individual with a disability in selection, acquisition, or use of an assistive technology device [20 U.S. C. Chapter 33, Section 1401 (26)]."

Present and review the **Types of Assistive Technology Services** transparency (T6). Examples of assistive technology services include, but are not limited to:

- Evaluating the needs of a student with a disability, including a functional evaluation of the student in his or her customary environment.
- Purchasing, leasing, or otherwise procuring assistive technology devices for individuals with disabilities.
- Selecting, designing, fitting, customizing, adapting, applying, maintaining, repairing, or replacing assistive technology devices.
- Coordinating and using other therapies, interventions, or services with assistive technology devices, such as those associated with existing education and rehabilitation programs.
- Training or providing technical assistance to a student with disabilities or the student's family, where appropriate.
- Training or providing technical assistance to professionals (including individuals providing education and rehabilitation services), employers, or other individuals who provide services to, employ, or are otherwise substantially involved in the major life functions of students with disabilities.



1.3 Lecture: Assistive Technology Devices and Services and the IEP

The cost of many assistive technology devices and services is very high. When determining which devices to purchase, school districts review the definitions of assistive technology devices and services closely and weigh these definitions against the needs of the student. The decision to purchase high-tech devices is made on a

case-by-case basis and usually takes into consideration the recommendations of the student's assistive technology team and parents. In order to make such high-tech devices available to the students, the student's parents and school often have to work together to access funding.

When writing Individual Education Plans (IEP), a variety of options exist for addressing assistive technology devices and services. After an appropriate evaluation that has considered the assistive technology needs of the student has been conducted, appropriate devices and/or other services may be included in the goals or objectives of the IEP, or may be specified as special education, related services, and/or supplementary aids and services needed in the regular classroom.



1.4 Activity: Incorporating Assistive Technology into the IEP

Paraeducators will participate in an activity that provides an opportunity to gain experience in writing IEP goals and objectives that incorporate assistive technology devices and services.



1.4.1 Steps

- Have the participants break into small groups.
- Distribute the **Incorporating Assistive Technology into the IEP** handout (**H2**).
- Instruct the groups to review the examples of IEP objectives on the handout and develop at least one additional objective for each category.
- When finished, have the groups share their additions with the class.



Goal 2: *Demonstrate how to use a variety of adaptive equipment needed to address physical, sensory, and communicative needs.*



Note to Instructor: Arrange to have examples of the adaptive equipment covered in this lecture available to the participants for **2.7 Activity: Examining Adaptive Equipment**. Most types of equipment needed for examples can be borrowed from fellow educators who teach populations of students who have special needs.



2.1 Lecture: Adaptive Equipment for Communication Disorders

Present and review the **Communication Disorders** transparency (T7). Communication disorders can be defined as a difficulty communicating with others, either in expressing or receiving language. Communication disorders may include:

- Difficulty speaking,
- Difficulty indicating thoughts to others,
- Difficulty understanding language and communication, or
- Any combination of these problems.

Augmentative communication devices and sign language are common adaptations for students with communication disorders. Also available are several assistive technology devices, typically called augmentative/alternative communication (AAC) systems. These devices range from simple picture books and icons to high-end, sophisticated electronic communication devices. Students with communication impairments and severe communication disorders can benefit academically, emotionally, and socially from the provision of a device that allows them to communicate their thoughts, learn and share information and ideas, and otherwise participate in life's activities.



2.2 Lecture: Adaptive Equipment for Hearing Disorders

Present and review the **Hearing Disorders** transparency (T8). Hearing disorders can be defined as a reduction in the ability to recognize and use sounds in the environment. Hearing disorders may be a result of:

- Infection;
- Stroke;
- Head injury;
- Tumor;

- Other medical problems; or
- Repeated exposure to very loud noises, such as music, power tools, or jet engines.

More than 25 million Americans are affected by hearing disorders. For individuals who are deaf or hard of hearing experience a deficiency in the amount of auditory input and a compromised ability to monitor speech output. Assistive technology devices such as hearing aides and FM systems can often be used to facilitate auditory input and speech output. Other types of assistive technology devices provide a visual representation of the auditory signal. These include flashing lights to indicate an emergency, the phone ringing, or someone at the door. Low-tech devices include information in a print format. Another recent adaptation is computer-assisted real-time translation (or communication access real-time technology) (CART), which involves a specially trained typist who types the discourse of the speaker(s) on a computer, which is then projected onto a computer monitor or other display for the student. A variation of CART is computer-assisted note taking (CAN), where the primary purpose is to provide a written record for a student.



2.3 Lecture: Adaptive Equipment for Vision Disorders

Present and review the **Vision Disorders** transparency (T9). Vision disorders can be defined as a decreased sensitivity and ability to meaningfully interpret visual information. Vision disorders can vary from slight fuzziness to total blindness. Eyeglasses are the most common adaptation for persons who have a vision disorder.

- Visual Impairment
 - ➔ The term visual impairment encompasses all degrees of permanent vision loss, including total blindness, which affects a person's ability to perform everyday tasks.
- Low Vision
 - ➔ Low vision refers to a vision loss that is severe enough to impede performance of everyday tasks, but still allows some useful visual discrimination.
 - ➔ Low vision cannot be corrected to normal by regular eyeglasses or contact lenses.

For individuals with visual impairments, there are a variety of assistive technology devices and strategies including:

- Reading,
- Writing,

- Daily care,
- Mobility, and
- Recreational activities.

Low-tech solutions might include a simple hand-held magnifier, the use of large print or Braille text to facilitate reading, or mobility devices (e.g., a long cane) for safe and efficient travel.

High-tech solutions might include a computer outfitted with a speech synthesizer and voice recognition software that allows written text to be read aloud or allows the person using it to dictate responses.



2.4 Lecture: Adaptive Equipment for Motor Impairments

Present and review the **Motor Impairments** transparency (T10). Motor impairments can be defined as a difficulty walking, crawling, physically manipulating objects, or otherwise moving around and interacting with the environment in a typical way.

Motor impairments can be regarded as:

- Gross Motor Impairments
 - ↳ Wheelchairs are a common assistive device for students who have a gross motor impairment.
 - ↳ For students with gross motor impairments with lower body limitations, such as spina bifida with no other complications, assistive technology devices may include a wheelchair access button or the use of crutches. Simple modifications or adaptations like rearranging a classroom may be all that is needed to ensure the student has access to the general education curriculum.
- Fine Motor Impairments
 - ↳ A pencil grip is a typical device for assisting with a fine motor impairment.
 - ↳ For students with fine motor impairments, such as a poor finger isolation, assistive technology devices may include an alternative keyboard to use with the computer, or a hand splint or pencil grip to assist with writing tasks.

Some students have combinations of fine and gross motor impairments. Selecting assistive technology devices in these cases may include a more extensive combination of both low- and high-tech devices.



2.5 Lecture: Adaptive Equipment for Learning and Cognitive Disorders

Present and review the **Learning and Cognitive Disorders** transparency (T11). Learning and cognitive disorders can be defined as a difficulty thinking and/or processing information. Learning and cognitive disorders may include difficulty in:

- Memory,
- Attention,
- Following directions, and
- Processing thoughts.

Learning and cognitive impairment can result from either developmental or acquired disabilities. An acquired disability, such as traumatic brain injury, can be very difficult for everyone involved because the individual started their life functioning at a very different level from where he or she is today. Not only can assistive technology provide important accommodations for acquired disabilities, it can also become a critical tool to be used during the recovery of functional skill sets.

For students who have learning disabilities, there are a wide range of behaviors and abilities that may require some sort of assistive technology solution. For example, many students with learning or cognitive impairments struggle with developing literacy skills. Fortunately there are many low- and high-tech solutions available to assist them. Many students benefit from the use of specially designed software packages that predict the word or phrase they are trying to spell as they type the first letter(s) of the word. Other software packages provide voice output so the student is able to hear the words they are generating. Simple solutions can also include colored highlighter tape, pencil grips, enlarged text, and other easy to provide adaptations.



2.6 Lecture: Adaptive Equipment for Sensory Disorders

Present and review the **Sensory Disorders** transparency (T12). Sensory disorders can be defined as an inability to process information taken in through the senses in the same way that typical individuals process information. More common forms of sensory disorders include tactile and oral defensiveness.

Often students with tactile defensiveness are provided opportunities to decrease and accommodate for the defensiveness through the use of a “sensory diet” during the school day. Students with sensory disorders have a difficult time with the typical, daily educational activities of a classroom. Sitting quietly and attending to the teacher’s instructions or peer interactions may happen only with assistance and therapeutic

approaches.

A low-tech assistive device may be as simple as providing the student with a “fidget toy.” A high-tech assistive device would be an FM system that allows the student to block the voices and noises of the environment and hear only the voice of the main speaker.



2.7 Activity: Examining Adaptive Equipment

Paraeducators will participate in an activity that provides an opportunity to gain a better understanding of a variety of adaptive equipment.



Note to Instructor: Arrange to have examples of the adaptive equipment covered in the previous lectures available to the participants for this activity. Most types of equipment needed for examples can be borrowed from fellow educators who teach populations of students who have special needs.



2.7.1 Steps

- Have the participants break into groups while you place pieces of adaptive equipment around the room.
- When you are finished, have the groups find a piece of equipment and discuss its use, identifying the disorder and situation for which it is appropriate.
- Have the groups continue to rotate until each group has experienced each piece of equipment.
- When finished, have the groups take their seats and share with the class at least one example of adaptive equipment that was new to them today.



Goal 3: Identify the role of the paraeducator in optimizing the use of technology for students.



3.1 Lecture: Paraeducators and Technology

Present and review the **Inclusive Schooling** transparency (**T13**). Inclusive schooling is defined as the practice of including everyone in typical, age-appropriate, neighborhood classrooms where all students' needs are met, irrespective of talent, disability, socioeconomic background, or cultural origin.

There is not enough time for teachers to address the needs of all students on an individual basis. Individual attention often comes from only one source, the paraeducator. Inclusive schooling has increased the number of paraeducators used in classrooms. As paraeducators examine their interactions with students in classrooms, it is important that they recognize that they are often the person responsible for carrying out direct services to students with special needs. It is their assistance to these students that not only enhances the student's interactions with his or her peers, but is key in providing access to and assistance with various learning opportunities, materials, and technologies. For some students, success in school is totally dependent on the paraeducator who is there to assist them. Paraeducators have a critical and important role in that they are the ones to ensure that:

- If technology is assigned to a student, it is used.
- That technology is available at the times that it is needed.



3.2 Activity: My Role in Providing Technology to Students

Paraeducators will participate in an activity that provides an opportunity to reflect on the role of the paraeducator in facilitating the use of technology in schools.



3.2.1 Steps

Distribute the **My Role in Providing Technology to Students** handout (**H3**).

- Have the participants complete the handout by reflecting on their role in facilitating and optimizing the use of technology in their school, and aspects of technology in schools that they view differently in light of what they have learned.
- When finished, have the participants share some of their reflections with the class.

Module D Handouts



Module D: Assisting Students with Special Needs Through the Use of Adaptive Equipment

1. Recognize the importance of legally defined assistive technologies in IEP objectives.
2. Demonstrate how to use a variety of adaptive equipment needed to address physical, sensory, and communicative needs.
3. Identify the role of the paraeducator in optimizing the use of technology for students.

Incorporating Assistive Technology into the IEP

Reading

- The student will read 20 words aloud from the first-grade level of the Dolch High-Frequency Words list using an enlarging system for text.
- The student will demonstrate knowledge of following directions provided in braille within a given instructional reading level.
- The student will retell a story using own words using an electronic communication system.

Writing

- The student will correct misspelled words within own compositions using an electronic spell checker.
- The student will proofread, recognize, and correct errors in word selection (words that do not represent the intended meaning) within own compositions using a word processing program with screen-reading speech output.
- The student will stamp own name on papers turned in to teacher using a stamp as a writing aid.

Math

- The student will solve two-step story problems using addition with a calculator.
- The student will solve single-digit addition and subtraction problems using manipulatives.
- The student will follow the classroom schedule by matching a picture symbol of a clock and time representations to the classroom clock.

Incorporating Assistive Technology into the IEP (continued)

Behavior

- The student will report to class and complete assignments on time using an electronic organizer.

Strategies

- The student will recognize advance organizers provided by the speaker as signals of important points to be presented using video-text translations during lectures.

Speech/Language

- The student will demonstrate an understanding of functional vocabulary using an assistive listening system.
- The student will produce two-word phrases to indicate wants or needs using an electronic communication system.

Leisure

- The student will demonstrate the ability to participate in frisbee in grade-level P.E. class using a disk with auditory output.
- The student will demonstrate the ability to participate in bowling using a ball pusher.

Incorporating Assistive Technology into the IEP (continued)

Motor

- The student will demonstrate the ability to ambulate using an assistive device.
- The student will demonstrate the ability to use a manual wheelchair within a restricted area.

Self-Care

- The student will undress for P.E. class using buttoning and sock devices.

Classroom

- The student will participate in classroom discussions using an augmentative communication system to answer yes and no questions from the teacher and peers.
- The student will complete written classroom assignments using an electronic writing system.
- The student will read assigned classroom material using a screen-reading system with speech output and a scanning system.



My Role In Providing Technology to Students

Reflect on your critical role in facilitating and optimizing the use of technology in your school. What opportunities do you see for the use of technology and what aspects of technology in schools do you view differently in light of what you have learned?



Module D Transparencies

Module D: Assisting Students with Special Needs Through the Use of Adaptive Equipment

InTechD-T1



- ***Recognize the importance of legally defined assistive technologies in IEP objectives.***
- ***Demonstrate how to use a variety of adaptive equipment needed to address physical, sensory, and communicative needs.***
- ***Identify the role of the paraeducator in optimizing the use of technology for students.***

Assistive Technology Devices

InTechD-T2



“...any item, piece of equipment, product, or system, whether acquired commercially or off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities [20 U.S.C. Chapter 33, Section 1401 (25)].”

Low-Tech Assistive Devices

InTechD-T3



- *Devices for Holding a Pencil*
- *Positions for Seating in the Classroom*
- *Adapted Utensils*
- *White Canes*
- *Adapted Puzzles*
- *Enlarged Letters on Keyboards*
- *Desk Easels*
- *Chair Inserts*
- *Electronic Switches*
- *Beanbag Chairs*
- *Velcro Attachments*
- *Picture Schedules*

High-Tech Assistive Devices

InTechD-T4



- *Computers*
- *Software Packages*
- *Electronic Devices*

Assistive Technology Services

InTechD-T5



“...any service that directly assists an individual with a disability in selection, acquisition, or use of an assistive technology device [20 U.S. C. Chapter 33, Section 1401 (26)].”

Types of Assistive Technology Services

InTechD-T6



- *Evaluating the needs of a student with a disability, including a functional evaluation of the student in his or her customary environment.*
- *Purchasing, leasing, or otherwise procuring assistive technology devices for individuals with disabilities.*
- *Selecting, designing, fitting, customizing, adapting, applying, maintaining, repairing, or replacing assistive technology devices.*
- *Coordinating and using other therapies, interventions, or services with assistive technology devices, such as those associated with existing education and rehabilitation programs.*

Types of Assistive Technology Services *(continued)*

InTechD-T6



- *Training or providing technical assistance to a student with disabilities or the student's family.*
- *Training or providing technical assistance to professionals, employers, or other individuals who provide services to, employ, or are otherwise substantially involved in the major life functions of students with disabilities.*

Communication Disorders

InTechD-T7



- *Difficulty communicating with others, either in expressing or receiving language.*

- *May include:*
 - *Difficulty speaking,*

 - *Difficulty indicating thoughts to others,*

 - *Difficulty understanding language and communication, or*

 - *Any combination of these problems.*

Hearing Disorders

InTechD-T8



- *Reduction in the ability to recognize and use sounds in the environment.*

- *May be a result of:*
 - ↳ *Infection,*
 - ↳ *Stroke,*
 - ↳ *Head injury,*
 - ↳ *Tumor,*
 - ↳ *Other medical problems, and*
 - ↳ *Repeated exposure to very loud noises.*

Vision Disorders

InTechD-T9



- *Decreased sensitivity and ability to meaningfully interpret visual information.*
- *Visual Impairment*
 - ↳ *Encompasses all degrees of permanent vision loss, including total blindness.*
- *Low Vision*
 - ↳ *A vision loss that is severe enough to impede performance of everyday tasks, but still allows some useful visual discrimination.*

Motor Impairments

InTechD-T10



- *Difficulty walking, crawling, physically manipulating objects, or otherwise moving around and interacting with the environment in a typical way.*
 - ➡ *Gross Motor Impairments*
 - ➡ *Fine Motor Impairments*

Learning and Cognitive Disabilities

InTechD-T11



- *Difficulty thinking and/or processing information.*

- *May include difficulty in:*
 - ↳ *Memory,*

 - ↳ *Attention,*

 - ↳ *Following directions, and*

 - ↳ *Processing thoughts.*

Sensory Disorders

InTechD-T12



- *An inability to process information taken in through the senses in the same way that typical individuals process information.*
 - *Tactile Defensiveness*
 - *Oral Defensiveness*

Inclusive Schooling

InTechD-T13



The practice of including everyone in typical, age-appropriate, neighborhood classrooms where all students' needs are met, irrespective of talent, disability, socioeconomic background, or cultural origin.